Pinus banksiana - Mixed Conifer / Cladina spp. Nonvascular Vegetation (Jack Pine / Lichen Rocky Barrens)

COMMON NAME	Jack Pine - Mixed Conifer / Reindeer Lichen species Nonvascular Vegetation
SYNONYM	Jack Pine / Lichen Rocky Barrens
PHYSIOGNOMIC CLASS	Nonvascular Vegetation (VI)
PHYSIOGNOMIC SUBCLASS	Lichen vegetation (VI.B)
PHYSIOGNOMIC GROUP	Temperate or subpolar lichen vegetation (VI.B.1)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (VI.B.1.N)
FORMATION	Lichen vegetation with a sparse tree layer (VI.B.1.N.c)
ALLIANCE	PINUS BANKSIANA / CLADINA SPP. NONVASCULAR ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

Voyageurs National Park

This community is common to some areas of the park. In the northern part of the park, it can be found in Anderson Bay and, less abundantly, in Daley Bay.

Globally

This association is found in northern Minnesota, Manitoba, and Ontario.

ENVIRONMENTAL DESCRIPTION

Voyageurs National Park

This type occurs on ridge tops and high slopes with 40-80% exposed bedrock. Slopes are highly variable and range from gentle to very steep with variable aspects. Vegetation usually occurs on patches where soil has collected over bedrock. The soil in these patches are typically shallow (1-3 cm deep) loams. These sites are rapidly drained.

Globally

This type occurs on ridge tops and high slopes with 40-80% exposed bedrock. Stands are typically comprised of granite or metamorphic rock, and possibly basalt. Slopes are highly variable and range from gentle to very steep with variable aspects. These sites are rapidly drained. Vegetation usually occurs on patches where soil has collected over bedrock. The soil in these patches are typically shallow (1-3 cm deep) loams, soil development is minimal, and pH is typically acid (Ohmann and Ream 1971, Grigal and Ohmann 1975, Minnesota NHP 1993, M. Smith personal communication 1999).

MOST ABUNDANT SPECIES

Voyageurs National Park

Stratum	Species
Tree canopy	*Pinus banksiana*
Tall shrub	*Quercus ellipsoidalis*
Short shrub	*Vaccinium angustifolium, Juniperus communis*
Graminoid	*Danthonia spicata, Agrostis scabra*
Nonvascular	*Cladina rangiferina, Cladina mitis, Cladina stellaris, Pleurozium schreberi*

Globally

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Tree canopy	*Pinus banksiana*
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Nonvascular	*Cladina rangiferina, Cladina mitis, Cladina stellaris, Pleurozium schreberi*

CHARACTERISTIC SPECIES

Voyageurs National Park

Cladina rangiferina, Cladina mitis, Cladina stellaris, Pleurozium schreberi, Pinus banksiana, Quercus ellipsoidalis,

Vaccinium angustifolium, Juniperus communis, Danthonia spicata, Agrostis scabra

Globally
Cladina rangiferina, Cladina mitis, Cladina stellaris, Pleurozium schreberi, Pinus banksiana, Quercus ellipsoidalis, Vaccinium angustifolium, Juniperus communis, Danthonia spicata, Agrostis scabra

VEGETATION DESCRIPTION
Voyageurs National Park
In this community, *Pinus banksiana* is the only tree dominant in the canopy. These trees are usually 10-15 meters tall and are present at less than 25% cover. Vascular vegetation is usually present in clumps underneath the canopy of *Pinus banksiana* trees. The short scrub or shrubs *Quercus ellipsoidalis, Abies balsamea,* and/or *Amelanchier* spp. may be absent or present at low cover. A dwarf-shrub layer is nearly always present, usually at 10-30% cover. The most abundant dwarf-shrubs are *Vaccinium angustifolium, Juniperus communis* var. *depressa*, and *Prunus pumila*. The herbaceous layer is poorly developed and may be absent. When present, it comprises 5-10% cover and primarily consists of *Danthonia spicata, Agrostis scabra, Corydalis sempervirens*, and *Woodsia ilvensis*. The nonvascular strata in this community typically comprises 30-50% cover, not including crustose lichens. Depending on substrate and slope, nonvascular cover can be as low as 10%. Dominant species are the lichens *Cladina rangiferina, Cladina mitis, Cladina stellaris, Stereocaulon* spp., and the mosses *Pleurozium schreberi*, *Polytrichum juniperinum, Polytrichum piliferum, Hedwigia ciliata,* and *Orthotrichum* spp.

Globally
Occurrences are typically a mosaic of exposed bedrock with patches of low vegetation dominated by fructicose lichens and mosses, which cover about 40% of the area. Bare rock covers about 30% of the area. Lichen species include *Cladina rangiferina, Cladina stellaris,* and *Cladina mitis*. Mosses include *Dicranum* spp., *Hedwigia ciliata, Orthotrichum* spp., *Pleurozium schreberi, Polytrichum juniperinum, Polytrichum piliferum*, and *Stereocaulon* spp. The vascular vegetation is typically sparse. Scattered trees and tall shrubs include *Abies balsamea, Amelanchier* spp*., Pinus banksiana, Prunus pensylvanica*, and *Salix bebbiana*. A dwarf-shrub layer is nearly always present usually at 10-30% cover. The most abundant dwarf-shrubs are *Diervilla lonicera, Vaccinium angustifolium, Juniperus communis* and *Prunus pumila*. The sparse herbaceous layer includes *Aralia hispidus, Corydalis sempervirens, Danthonia spicata, Sibbaldiopsis (=Potentilla) tridentata*, and *Woodsia ilvensis* (Ohmann and Ream 1971, Grigal and Ohmann 1975, Minnesota NHP 1993, M. Smith personal communication 1999).

CONSERVATION RANK G3G5.

DATABASE CODE CEGL002491

COMMENTS
Voyageurs National Park
Diagnostic features of the type are the dominance of nonvascular vegetation, with <25% cover of trees or shrubs and only scattered herbaceous vegetation. When trees are present, *Pinus banksiana* is most typical. When canopy cover of *Pinus banksiana* reaches 25%, this community grades into the Boreal Pine Rocky Woodland (CEGL002483).

REFERENCES

Grigal, D. F. and L. F. Ohmann. 1975. Classification, description, and dynamics of upland plant communities within a Minnesota wilderness area. Ecol. Monogr. 45:389-407.

Minnesota Natural Heritage Program. 1993. Minnesota's native vegetation: A key to natural communities. Ver. 1.5. Minn. Dep. Nat. Resour., Nat. Heritage Prog. St. Paul, Minn. 110 p.

Ohmann, L. F. and R. R. Ream. 1971. Wilderness ecology: virgin plant communities of the Boundary Waters Canoe Area. Res. Pap. NC-63. St. Paul, MN. U. S. Dept. of Agr., For. Service, North Central Exper. Sta. 55 pp.